



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER OF PATENTS AND TRADEMARKS  
Washington, D.C. 20231  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/086,619	03/01/2002	Don R. Stevenson	47399.0015	1903

24115 7590 12/02/2002

BUCKINGHAM, DOOLITTLE & BURROUGHS, LLP  
50 S. MAIN STREET  
AKRON, OH 44308

EXAMINER

THEXTON, MATTHEW

ART UNIT	PAPER NUMBER
----------	--------------

1714

DATE MAILED: 12/02/2002

6

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/086,619

Applicant(s)

STEVENSON ET AL.

Examiner

Matthew A Thexton

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 12 April 2002 and 24 April 2002.
- 2a) ☐ This action is **FINAL**.                      2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-41 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-41 is/are rejected.
- 7) ☒ Claim(s) 39 and 41 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.  
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
a) ☐ All b) ☐ Some \* c) ☐ None of:  
1. ☐ Certified copies of the priority documents have been received.  
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).  
\* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☒ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).  
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)                      4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)                      5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4,5.                      6) ☐ Other: \_\_\_\_\_

Art Unit: 1714

## DETAILED ACTION

### *Priority*

1. If applicant desires priority under 35 U.S.C. 119(e) based upon a previously filed copending application, specific reference to the earlier filed application must be made in the instant application. This should appear as the first sentence of the specification following the title, preferably as a separate paragraph. The status of nonprovisional parent application(s) (whether patented or abandoned) should also be included. If a parent application has become a patent, the expression "now Patent No. \_\_\_\_\_" should follow the filing date of the parent application. If a parent application has become abandoned, the expression "now abandoned" should follow the filing date of the parent application.

If the application is a utility or plant application filed on or after November 29, 2000, any claim for priority must be made during the pendency of the application and within the later of four months from the actual filing date of the application or sixteen months from the filing date of the prior application. See 37 CFR 1.78(a)(2) and (a)(5). This time period is not extendable and a failure to submit the reference required by 35 U.S.C. 119(e) and/or 120, where applicable, within this time period is considered a waiver of any benefit of such prior application(s) under 35 U.S.C. 119(e), 120, 121 and 365(c). A priority claim filed after the required time period may be accepted if it is accompanied by a grantable petition to accept an unintentionally delayed claim for priority under 35 U.S.C. 119(e), 120, 121 and 365(c). The petition must be accompanied by (1) a surcharge under 37 CFR 1.17(t), and (2) a statement that the entire delay

Art Unit: 1714

between the date the claim was due under 37 CFR 1.78(a)(2) or (a)(5) and the date the claim was filed was unintentional. The Commissioner may require additional information where there is a question whether the delay was unintentional. The petition should be directed to the Office of Petitions, Box DAC, Assistant Commissioner for Patents, Washington, DC 20231.

The declaration does not correctly claim benefit under 35 USC 119(e).

The declaration refers to 60/314181, filed 15/08/01, which is not in agreement with USPTO records.

***Claim Rejections - 35 USC § 112***

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

1. Claims 1-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The claims recite component (b) in quantity terms relative to a "resin," however these claims are, as best understood from the intended use language and the disclosure, to be substantially free of any resin. Accordingly, the limitation is unclear because the language makes it unclear whether or not resin is present. Claims 32-34 recite amounts of component (a) in terms of "phr" which normally refers to a dosage in a resin, however, as noted, these claims are, as best understood from the intended use language and the disclosure, to be substantially free of any resin.

Art Unit: 1714

2. Claims 1-41 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Component (b) recites the amount of zinc in terms of parts per million (ppm) and then further as "per hundred parts of a resin" or "per 100 parts of a resin." Does this mean that the ppm values are further modified by a factor of 100, i.e. "50 to 800 ppm per hundred parts resin" is 0.5 to 8 ppm of resin? If the latter is intended, it should be clearly stated.

3. Claims 33-36 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Within the list of zinc carboxylates in claim 33 it appears that an extraneous comma is present between "zinc" and "decoate" which renders the claims unclear.

4. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 1-31 and 37-41 are rejected under 35 U.S.C. 112, first paragraph, because the specification, while being enabling for zinc compounds, as described at the paragraph bridging page 9 and page 10, does not reasonably provide enablement for zinc, i.e. the metal per se, or for zinc compounds which do not dissolve in the liquid compositions disclosed. The specification does not enable any person skilled in the art

Art Unit: 1714

to which it pertains, or with which it is most nearly connected, to make and use the invention commensurate in scope with these claims.

### ***Claims Objections***

5. Claim 39 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 39 depends from claim 38. Claim 38 is limited to pentaerythritol phosphites of the indicated structural formula and moiety limitation set forth in the claim. Claim 39 presents three formulas of said phosphite. The first two are identical, and the third is not encompassed by the limitations of claim 38. Should applicant reword this claim to embody one specie, the language "selected from the group consisting of" should be deleted in order to make the claim unambiguous.

6. Claim 41 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Claim 41 depends from claim 40, which limits said phosphite to a polydialkylene glycol phosphite. Claim 41 purports to limit said polydialkylene glycol phosphite to two presented structures. However, the second structure is beyond the scope of claim 40 due to apparent error in structure, specifically, the right hand phenyl has been drawn to encompass within its brackets the atom P. This problem appears at page 8 "#10" also. Further, the

Art Unit: 1714

polydialkylene glycol is subscripted with an "n" rather than a "p" as required by claim 40 (and claim 31 from which it depends). Since the first structure in claim 41 corresponds to  $p=1$ , the second structure would appear to be unique only when  $p=0$ .

### ***Specification***

7. The disclosure is objected to because of the following informalities: As noted in the rejection of claims 1-41 above under 35 USC 112, the use of ppm further modified with 'parts per hundred' is confusing. This problem appears at page 9, lines 9-10.

In addition, the information regarding the examples presented in Tables III, V, VII, IX, XI, XIII, XIX, XXI is confusing because the term "phr" normally refers to components added to 100 pounds of a base material, however the component 'PVC Resin' is variously indicated as being added at 98 or 100 phr, which contradicts its apparent presence as the base material. If it is not the base material, then what is? If it is the base material then it appears it should be present as 100 pounds, not 100 phr.

Appropriate correction is required.

### ***Claim Rejections - 35 USC § 102***

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

8. Claims 1-10 are rejected under 35 U.S.C. 102(b) as being anticipated by Valdiserri (US 4614756). Applicants claims are comprising and hence do not preclude

Art Unit: 1714

the tin additive of the reference, and the zinc limitation is ineffective since no resin is present in the claimed liquid

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

9. Claims 1-7, and 9-17 are rejected under 35 U.S.C. 103(a) as being unpatentable over Minagawa, et al. (US 4282141).

Claims 1-10 comprise liquid mixtures of a phosphite ester and zinc (compound?). Claim 5 introduces a property of weight loss in a specified test to claims 5-10. Claim 7 recites a narrower Markush group of phosphite esters applicable to claims 7-10. Claim 8 is a narrower Markush group that applies to claims 8 and 9. Claim 9 is "essentially free" of barium, cadmium, and calcium. Claim 10 is limited to one of eight species of phosphite esters.

Claims 11-20 comprise liquid mixtures of a phosphite ester and zinc (compound?) wherein the molar ratio of P/Zn may range from 8 to 75. Claim 15 introduces a property of weight loss in a specified test to claims 15-20. Claim 17 recites a narrower Markush group of phosphite esters applicable to claims 17-20. Claim 18 recites a narrower Markush group that applies to claims 18 and 19. Claim 19 is "essentially free" of barium, cadmium, and calcium. Claim 20 is limited to one of eight species of phosphite esters.



Art Unit: 1714

The reference teaches "environmentally acceptable" polymers which comprise zinc salt (column 10, lines 55-65) and alkylaryl phosphite (column 8, line 31 to column 9, line 36), both at doses which overlap the present claims. Liquid formulations are taught (column 11, lines 55-65) and when combined with the composition teachings (column 8 line 31 to column 9 line 40 and column 10 lines 55-65) claims 1-7 and 9-17 are met. The volatility limitations of claims 5-7, 10, and 15-17 are inherent. Although no one example anticipates applicant's claims, the broad teaching suggests modifications and ranges which meet the claims. Claim 9 which requires mixtures "essentially free" of barium, cadmium, and calcium, are encompassed by the teachings, e.g., claim 18 of Minagawa. The reference does not disclose the phosphite esters of claims 8 or 18-20.

10. Claims 1-8, 10-18, 20, 31, 32 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Housel (US 4340514).

Claims 1-10 comprise liquid mixtures of a phosphite ester and zinc (compound?). Claim 5 introduces a property of weight loss in a specified test to claims 5-10. Claim 7 recites a narrower Markush group of phosphite esters applicable to claims 7-10. Claim 8 is a narrower Markush group that applies to claims 8 and 9. Claim 9 is "essentially free" of barium, cadmium, and calcium. Claim 10 is limited to one of eight species of phosphite esters.

Claims 11-20 comprise liquid mixtures of a phosphite ester and zinc (compound?) wherein the molar ratio of P/Zn may range from 8 to 75. Claim 15 introduces a property of weight loss in a specified test to claims 15-20. Claim 17 recites a narrower Markush group of phosphite esters applicable to claims 17-20. Claim 18

Art Unit: 1714

recites a narrower Markush group that applies to claims 18 and 19. Claim 19 is "essentially free" of barium, cadmium, and calcium. Claim 20 is limited to one of eight species of phosphite esters.

Claims 31-41 comprise additive mixtures for polyvinyl chloride of phosphite ester of the a four genus member Markush group and zinc (compound?). Claim 32 introduces a dosage rate for the phosphite into non-present resin, and limits the zinc to zinc carboxylate, to claims 32-37. Claim 33 lists the species of zinc carboxylates applicable to claims 33-36. Claim 37 limits claim 31 to structurally related p-cumyl phenol phosphites. Claim 38 limits claim 31 to structurally related pentaerythritol phosphites and claim 39 further limits claim 38 to one of three species. Claim 40 limits claim 31 to structurally related polydiakylene glycol phosphite and claim 41 further limits claim 40 to one of two species.

Housel teaches "non-toxic" liquid stabilizers for halogenated hydrocarbon resins. The zinc component (column 2, lines 15-40) is a carboxylate, present as zinc in the mixture at 0.1 to 3.5 percent (column 5, lines 35-38) which is compounded with the resin at 0.25 to 4 percent of the resin (column 1, lines 59-61) which overlaps applicant's claimed levels of zinc. The phosphite component (column 3, line 39 to column 4, line 54) may be selected from multiple species including alkylaryl phosphites and distearyl/pentaerythritol diphosphite (column 4, line 43) present in the mixture at about 0.93 to 10.28 percent as P (column 5, lines 35-41), which when translated to molar ratio to zinc overlaps applicant's claimed ratios. The volatility limitations of claims 5-8, 10, 15-17 and 20 are inherent. The phosphites disclosed meet the claims including claim

Art Unit: 1714

38 to pentaerythritol phosphite. Examples 12 and 14 suggest to modify example 4 to increase the ratio of phosphorus within the ranges taught. Although no one example anticipates applicant's claims, the broad teaching suggests modifications and ranges which meet the claims.

The reference does not disclose mixtures "essentially free" of calcium as required of claims 9 and 19. The reference does not disclose any of the species of zinc carboxylates of claims 33-36. The reference does not disclose the phosphites of claims 37 and 39-41.

11. Claims 1-41 are rejected under 35 U.S.C. 103(a) as being unpatentable over Rhodes, et al. in view of Nosu et al. (US 5120783) and Kotani, et al. (US 5414030).

Claims 1-10 comprise liquid mixtures of a phosphite ester and zinc (compound?). Claim 5 introduces a property of weight loss in a specified test to claims 5-10. Claim 7 recites a narrower Markush group of phosphite esters applicable to claims 7-10. Claim 8 is a narrower Markush group that applies to claims 8 and 9. Claim 9 is "essentially free" of barium, cadmium, and calcium. Claim 10 is limited to one of eight species of phosphite esters.

Claims 11-20 comprise liquid mixtures of a phosphite ester and zinc (compound?) wherein the molar ratio of P/Zn may range from 8 to 75. Claim 15 introduces a property of weight loss in a specified test to claims 15-20. Claim 17 recites a narrower Markush group of phosphite esters applicable to claims 17-20. Claim 18 recites a narrower Markush group that applies to claims 18 and 19. Claim 19 is

Art Unit: 1714

"essentially free" of barium, cadmium, and calcium. Claim 20 is limited to one of eight species of phosphite esters.

Claims 21-30 consist essentially of "essentially toxic-metal free" liquid mixtures of phosphite ester and zinc (compound?). Claim 25 introduces a property of weight loss in a specified test to claims 25-30. Claim 27 recites a narrower Markush group of phosphite esters applicable to claims 27-30. Claim 29 is "essentially free" of barium, cadmium, and calcium. Claim 30 is limited to one of eight species of phosphite esters.

Claims 31-41 comprise additive mixtures for polyvinyl chloride of phosphite ester of a four genus member Markush group and zinc (compound?). Claim 32 introduces a dosage rate for the phosphite into non-present resin, and limits the zinc to zinc carboxylate, to claims 32-37. Claim 33 lists the species of zinc carboxylates applicable to claims 33-36. Claim 37 limits claim 31 to structurally related p-cumyl phenol phosphites. Claim 38 limits claim 31 to structurally related pentaerythritol phosphites and claim 39 further limits claim 38 to one of three species. Claim 40 limits claim 31 to structurally related polydiakylene glycol phosphite and claim 41 further limits claim 40 to one of two species.

Rhodes teaches liquid stabilizer compositions for polyvinyl chloride (PVC) comprising phosphite esters (column 3 line 49 to column 4 line 35) and metal carboxylates including zinc (column 3, lines 26-48). The desirability of non-toxic metals is taught (column 3, lines 41-48) with preference for zinc stearate. The proportions are broadly taught (column 5, lines 18-25) and appear to overlap the claim limitations in claims 11-20. The volatility limitations of claims 5-8, 10, 15-17 and 20 are inherent.

Art Unit: 1714

The phosphites disclosed meet the claims except for those in claims 8, 9, 18, 19, 28, 29, and 31-41. Kotani is cited merely to show what applicant admits with respect to the phosphite esters encompassed by the claims, which is that they were well known at the time of the invention for the purpose of stabilizing PVC (column 6 line 46 to column 10 line 3) and which meet the narrower Markush group of claims 8, 9, 18, 19, 28, 29, and 31-7, 39, and 40 and the species of claims 38 and 41. It would have been obvious to one of ordinary skill in the art at the time the invention was made to use well known phosphites (e.g. as in Kotani) in combination with the teachings of Rhodes since their property is that sought by Rhodes.

Nosu discloses halogen stabilized resins using similar stabilizing mixtures. Nosu is relied upon for its teaching that cadmium and barium are undesirable and that zinc and calcium are preferred for their low cost and low toxicity (column 1, lines 17-39). One of ordinary skill in the art, at the time the invention was made, would have found it obvious to avoid the cadmium and barium metal options and instead rely solely upon zinc given the teachings of Nosu, particularly since no advantage is suggested in Rhodes for cadmium or barium over zinc. Since there is no calcium in the taught mixtures, the limitations of claims 9, 19, and 29 are met.

***Cited Relevant Art***

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Due to the broad nature of some of the claims, many references could be used to render the claims anticipated or obvious. The following references are

Art Unit: 1714

deemed cumulative over the references applied in the above art rejections, but may become applicable should applicant's claims be amended.

Capolupo, et al. (US 4402858) teaches adding zinc salts of organic acids to phosphite antioxidants to reduce hydrolysis thereof in proportion of P/zinc of 78 to 900 by mole.

Nguyen, et al. (US 5374377) discloses PVC stabilizers comprising zinc carboxylate (column 4, lines 6-20) as the sole metal component plus phosphite ester (column 3, lines 28-53) in proportions overlapping applicant's.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Matthew A Thexton whose telephone number is 703-305-5085. The examiner can normally be reached on Monday-Friday, 8:30 to 6.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasudevan S Jagannathan can be reached on 703-306-2777. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-5665.

mat  
November 26, 2002



Matthew A. Thexton  
Primary Examiner  
Art Unit 1714